

**REMARKS**

Claims 1-18 are pending in the above-identified application. It is respectfully submitted that this Response is fully responsive to the Office Action dated April 27, 2005.

Applicants gratefully acknowledge the indication that claims 11 and 14 would be allowable, if amended, to include all of the limitations of the base claim and any intervening claims.

Claims 1-10, 12-13, 15 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Dalton et al.* (6,720,249) in view of *Takase et al.* (6,051,508). The Examiner acknowledged that *Dalton et al.* fails to disclose a multilayered resist 9, 10, 11. However, the Examiner asserted that *Dalton et al.* would look to *Takase et al.* “for fabrication protection because *Takase et al* discloses using a multilayered resist (Fig. 3D el. 27, 29, 30).” For at least the following reasons, Applicants respectfully request withdrawal of the obviousness rejections.

The Examiner has not made a *prima facie* case of obviousness. The mere fact that the prior art may be modified in the manner suggested in the Office Action does not make the modification obvious unless the prior art suggested the desirability of the modification. The references fail to teach or suggest such a modification proposed by the Examiner. One reason is because both *Dalton* and *Takase* fail to recognize either the problem and/or the source thereof, which the above-identified application solves, and neither of the cited references disclose any idea or approach to solve the problems. (p. 3, errors occur on the pattern formed on a photoresist by lithography due to poor planarity thereof.) Thus, one of ordinary skill in the art would not

have been motivated to combine the teachings of *Dalton* and *Takase* in order to reach the present invention.

As explained in the specification of the above-identified application, in the conventional trench-first damascene method, a photoresist for a via hole is applied on a level difference of a mask pattern for a wiring trench. In this case, the thickness of the photoresist film for via hole becomes uneven due to a level difference of a base, making it difficult to perform exposure process with high precision. (Especially, when a technology of ArF excimer laser, which is a short wavelength, is used, a depth of focus becomes shallow and is extremely sensitive to planarity of a base.)

In the above-identified application, a method for forming a wiring by a dual damascene method comprises the steps of forming a mask pattern 6 (Figs. 1A to 1D) for a wiring trench on a interlayer dielectric film, and forming a mask pattern 11 (Fig. 1E) for a via hole on the level difference of the mask pattern 6 for the wiring trench by using a multilayered resist (which is composed of a resin film 9, a SOG film 10 and photoresist 11 as shown in Fig. 1E, in the embodiments.)

By using this multilayered resist, since the level difference in the mask pattern 6 is filled and the photoresist 11 is formed under the condition that planarity of the base is ensured, the problem can be solved. (See from line 11 on page 3 to line 10 on page 4, and lines 6-17 on page 15.)

The Examiner states that *Takase* discloses using a multilayered resist (27, 29, 30). However, as apparent from Fig. 3G of *Takase*, among an organosiloxane film 27, an inorganic

SOG film 29 and a photoresist pattern 30, the organosiloxane film 27 constitutes an interlayer dielectric with a silicon nitride film 28, but does not constitute a resist film. Moreover, the surface of the organosiloxane film 27 is planarized and the resist films 29 and 30 are formed on the interlayer dielectric 27 and 28 with their surfaces planarized. However, in the above-identified application, the resist film is formed on the base having the level difference. Therefore, there is a fundamental difference between the present invention and *Takase*. In other words, the films 29 and 30 disclosed in *Takase* do not have the purpose or function for filling the level differences and planarizing the base. Thus, the films 29 and 30 are different from the multilayered resists according to the present invention.

Moreover, *Takase* fails to recognize the problem that it is difficult to perform an exposure process with high precision because it is difficult to adjust the depth of focus on the photoresist formed on the level difference, which the above-identified application recognizes and attempts to solve.

Also, as apparent from Fig. 3 of *Dalton*, a photoresist layer 110 for a via hole lacks planarity due to level difference of a base. However, nothing in the specification of *Dalton* discusses the problems caused by the lack of planarity of the photoresist layer 110.

Therefore, as discussed above, neither *Dalton*, nor *Takase* discuss the problem to be solved in the above-identified application or suggest a method for solving the problem. Accordingly, one of ordinary skill in the art would not have been motivated to combine the teachings of *Dalton* and *Takase* in order to reach the present invention. Therefore, claim 1 should be allowed.

Claims 2-15 and 17 depend from claim 1 and should likewise be allowable.

Claims 16 and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Huang* in view of *Takase et al.* as applied to claims 1, 6, and 12, and further in view of *Pan et al.* (2004/0023497). Claims 16 and 18 depend from independent claim 1 and should likewise be allowable in view of the above-remarks.

In view of the accompanying remarks, Applicants submit that that claims 1-18 are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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